

CLAIMS

1. A pneumatic tire comprising:
a tread area that is divided into a plurality of lands
by a plurality of grooves formed in the tread area, wherein
5 each of the grooves includes a plurality of
protrusions arranged at intervals on a bottom of the groove,
the protrusions are lower than the lands from the
bottom of the groove, and separated from the lands,
each of the protrusions includes
10 a protrusion main body having a top portion that
is a highest portion from the bottom of the groove; and
a slope portion having a slope that makes an angle
with the bottom of the groove in a range between 3 degrees
and 60 degrees, and
15 the slope portion is formed in at least one direction
along the groove.
2. The pneumatic tire according to claim 1, wherein
the slope portion is formed in at least two opposite
20 directions with respect to the protrusion main body along
the groove.
3. The pneumatic tire according to claim 1, wherein
a width of the slope is 0.7 time to 1.1 times of a
25 width of the top portion in a direction of the width of the
slope.
4. The pneumatic tire according to claim 1, wherein
a height of the top portion from the bottom of the
30 groove is equal to or more than 2 millimeters and equal to
or less than a half of a height of the lands.
5. The pneumatic tire according to claim 1, wherein

a joint is provided between two adjacent protrusions,
a height of the joint is equal to or less than 1
millimeter from the bottom of the groove, and

the two adjacent protrusions are connected by the
5 joint.

6. The pneumatic tire according to claim 1, wherein
the lands form a block pattern,
the grooves intersect each other to form an
10 intersection, and
the protrusion main body is located at the
intersection.

7. The pneumatic tire according to claim 1, wherein
15 the lands form a block pattern,
the grooves intersect each other to form an
intersection,
the protrusion main body is located at the
intersection, and
20 the slope portion is formed in a plurality of
directions along the grooves.

8. The pneumatic tire according to claim 1, wherein
the lands form a block pattern,
25 the grooves intersect each other, and
the slope portion is bent from a first groove in which
the protrusion main body connected with the slope portion
is formed in a direction along a second groove that
intersects the first groove.

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9. The pneumatic tire according to claim 1, wherein
the slope portion is formed in three directions or
more with respect to the protrusion main body.

10. The pneumatic tire according to claim 1, wherein
the slope portion is formed in four directions or less
with respect to the protrusion main body.
- 5 11. The pneumatic tire according to claim 1, wherein
the angle between the slope portion and the bottom of
the groove is equal to or less than 30 degrees.
- 10 12. The pneumatic tire according to claim 1, wherein
the protrusion main body and the slope portion are
separated from each other.
13. The pneumatic tire according to claim 1, wherein
15 a width of the slope is same as a width of the top
portion in a direction of the width of the slope.
14. The pneumatic tire according to claim 1, wherein
a width of the slope is different from a width of the
20 top portion in a direction of the width of the slope.